CLAIMS

1. For use in an ultra wideband (UWB) communication system, a method for communicating binary data, having logical "0" and "1" value types, as a sequence of UWB pulses, the method comprising:

encoding binary data of one value type as positive UWB pulses and binary of the other value type as negative UWB pulses; and

detecting the presence of positive and negative UWB pulses using a zero-level sensing threshold, thereby increasing immunity to noise.

2. A method as defined in claim 1, wherein:

each UWB pulse includes a carrier signal; and

each negative UWB pulse has its carrier phase inverted.

3. A method as defined in claim 2, wherein the detecting step comprises:

sensing whether the carrier phase is inverted or not;

rectifying and filtering the UWB carrier signal pulse to provide a unidirectional signal; and

adjusting the polarity of the unidirectional signal based on whether the sensed carrier phase is inverted or not.

4. A method as defined in claim 3, wherein:

the UWB pulses are generated in predetermined time slots; and

the method further comprises assigning portions of each time slot to respective communication channels, whereby data signals pertaining to multiple communication channels are transmitted in a single time slot.

5. A method as defined in claim 4, wherein:

each UWB pulse time slot has two half time slots;

data signals pertaining to first and second communication channels are encoded in the first and second halves, respectively, of each UWB pulse time slot.